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SUMMARY

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**THE ROLE OF HEAVY CHEMICALS
IN INDUSTRIAL DEVELOPMENT**

By **A. GOLDBERG,**
ARSM, B. Sc. (Min), AMIChe

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Summary

D. 12.A.

THE ROLE OF HEAVY CHEMICALS IN INDUSTRIAL DEVELOPMENT

A. Goldberg, ARSM, BSc(Min) AMIChE

1. General

(a) Heavy Chemical Industry which manufactures Fertilizers, Mineral Acids and main Industrial Chemicals. A case study of the development of the Haifa complex and its effect on the development of Israel Industry in general.

2. Short History

(a) The construction of the Haifa plant was started in 1948, and as a beginning a simple den Superphosphate plant was built in addition to a small Sulphuric Acid plant. The employment in 1948 was 25 men of whom few had seen a factory. By 1958 the Haifa plant synthesized Ammonia, manufactured all the main mineral acids in large tonnages and supplied all Israel's requirements of Fertilizers in addition to cattle feed additives, detergent raw materials, industrial gasses, etc. Employment was 1000.

3. The Skills and their development

(a) Due to shortage of skilled personnel and a shortage of foreign currency, a policy decision was made that all united construction must be coupled with instruction and training and erection went hand in hand, using U.S., British and French contractors and instructors.

(b) Expert crews were trained to handle:

- Rigging and Lifting
- Refractory Work
- Lead Burning and Plumbing
- Rubber Lining
- High class Certified Welding
- Large scale Engineering.

(c) Training within industry was developed - future operators were taught chemistry, foremen management techniques, and superintendents budgeting and management techniques.

4. Ancillary Industries:

- (a) Other industries were encouraged by large contracts.
- (b) The local fabrication industry, which now manufactures boilers, tanks, towers, structural steel work, cut their teeth on the Haifa plants work.
- (c) Material handling manufacturers were helped to get into business.
- (d) Metallurgically controlled castings were first produced for the Chemical plants.

5. Chemicals in Industry.

- (a) Agriculture was helped by having available large stocks of local fertilizers. 28,000 tons of fertilizer were used in 1948 - 250,000 tons in 1960.
- (b) Many industries were developed, which could not have existed with imported chemicals, e. g. - Detergents, Cellulose, intermediates for Pharmaceuticals, industries using industrial gasses.

6. Conclusions.

- (a) 14 years after the start of the plant construction, a modern complex is available - pregnant with development and able to utilize new ideas coming from academic institutions. Every chemical undertaking in Israel utilizes personnel who were trained in Haifa. Most modern plants built in Israel have personnel who first saw the industrial approach in the Haifa plant.
- (b) A heavy chemical plant combines training for every branch of industrial activity, and thus acts as a source of know-how, industrial approach plus chemicals.
- (c) The article will be illustrated with pictures of the development and charts indicating the type of organization.